C122 ORDER NO. TD87100270C2

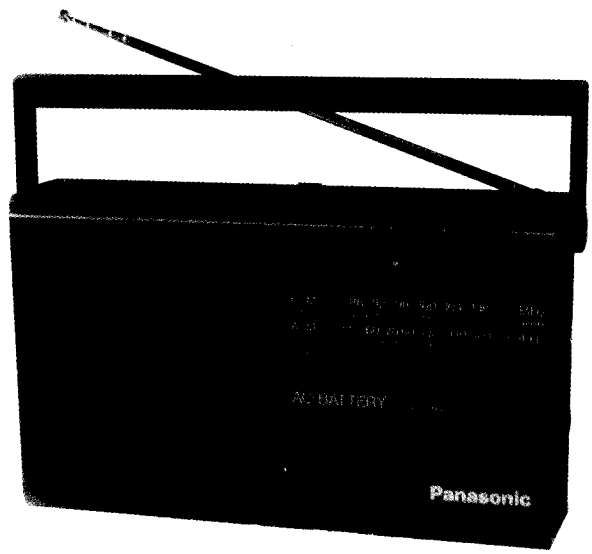
Service Manual

Radio

RF-542

(WHITE) (Black)

FM/AM Portable Radio



This is the Service Manual for the following areas.

[Z]...For all European areas except United Kingdom, F.R. Germany, France, Italy and Finland.

[ZE]...For United Kingdom.

[ZI]...For Italy and Finland.

[ZG]...For F.R. Germany.

[ZY]...For Spain and Greece.

■ SPECIFICATIONS

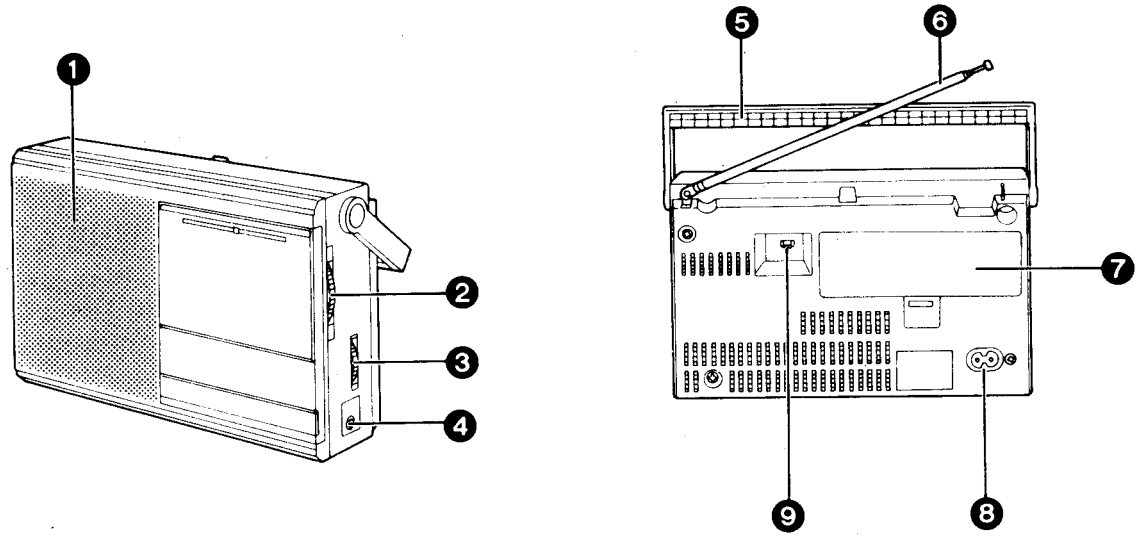
Frequency Range:	FM 87.5 ~ 108MHz AM 520 ~ 1610kHz (577 ~ 186m)
Intermediate Frequency:	FM 10.7MHz AM 455kHz (470KHz···[ZE] Only)
Sensitivity:	FM 4.0μV for 50mW Output (−3dB Limit, Sens) AM 159μV/m for 50mW Output
Power Output:	720mW RMS. (Max)
Power Requirement:	AC; [Z] [ZI] [ZG] [ZY]···220V, 50Hz [ZE] ·····240V, 50Hz Battery; 6V (Four "AA" Penlight Batteries) (Panasonic UM-3 or equivaient)
Power Consumption:	3W (AC only)
Speaker:	8cm PM Dynamic Speaker 4Ω
Dimensions:	212(W)×161(H)×56(D)mm
Weight:	610g Without Batteries
Impedance:	Earphone/EXT SP Jack·····8Ω/3.5

Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS



1. **Speaker** (8cm, 4Ω)
2. **Tuning Control (TUNING)**
3. **On • Off/Volume Control (VOLUME)**
4. **External Speaker/Earphone Jack (▷) IMP 8Ω ONLY)**
5. **Handle**
6. **Telescopic Antenna**
7. **Battery Compartment**
8. **AC Socket**
9. **Band Selector (BAND)**

DISASSEMBLY INSTRUCTIONS

■Remove the Battery Compartment Cover (Fig. 1)

1. Remove the Battery Compartment Cover (A)×1

■Remove the Front Cabinet (Fig. 2)

1. Remove screws (B) (3×20)mm×5

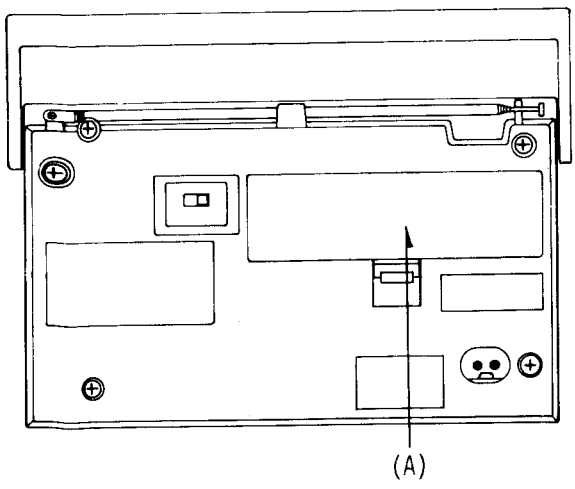


Fig. 1

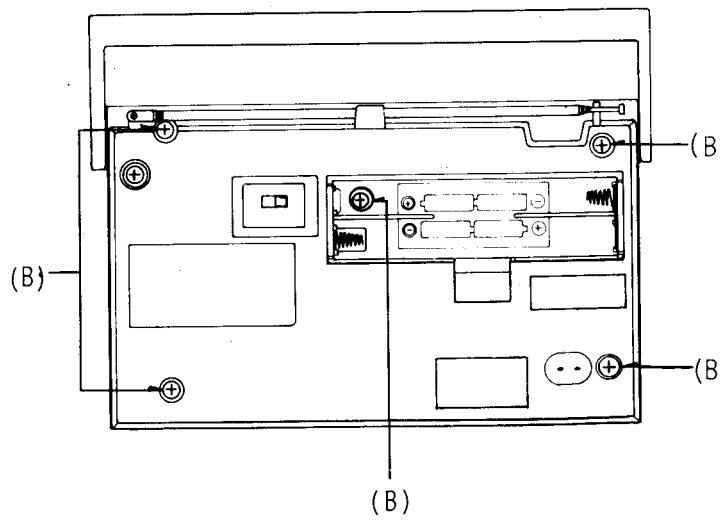


Fig. 2

■Remove the PC. Board (Fig. 3)

1. Remove the Socket (C)×1
2. Pull out the PC Board with a driver in the direction of arrow (D) as shown in (Fig. 3)
3. Remove screws (E) (3×12)mm×3

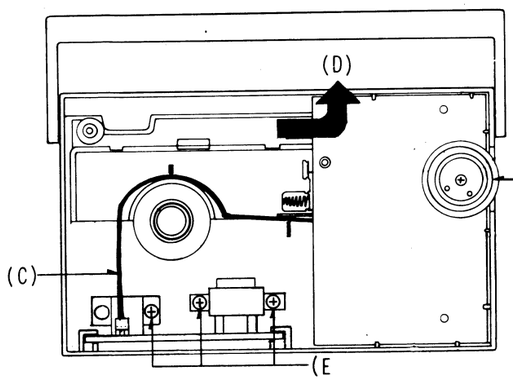


Fig. 3

Notes:

1. Set the variable capacitor to minimum position.
2. Turn the tuning knob clockwise until reaching end scale position.
3. Before inserting the radio PWB into the rear cabinet be sure to insert completely the variable capacitor shaft into the tuning knob cabity.

[Z] ···For all European areas except [ZE] [ZI] [ZG] [ZY]
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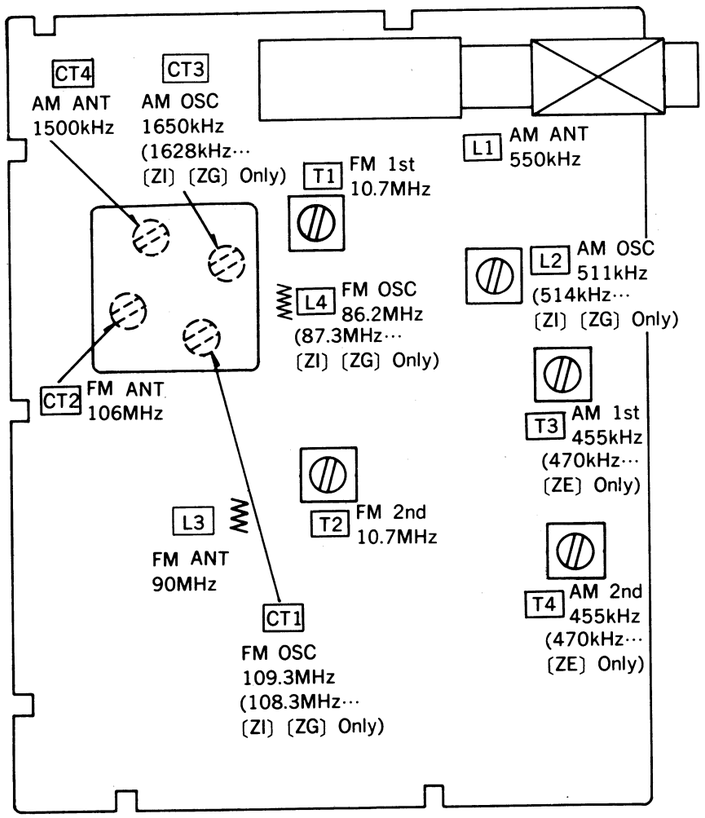
■ALIGNMENT POINTS

• Please refer to Circuit Board and Wiring Connection Diagram to locate the test points.



MEASUREMENTS AND ADJUSTMENTS

■ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes:
1. Set volume control to maximum.
2. Set band switch to AM or FM.
3. Set power source voltage to 6 volts DC.
4. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING (DISTANCE)	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
	AM-IF & RF ALIGNMENT					
(1)	Fashion loop or Several turns of wire and radiate signal into loop of receiver.	455kHz (470kHz··· ··[ZE] only) 30% Mod. at 400Hz	Point of non-interference. (on/about 600 kHz)	Output meter across voice coil.	T3 (AM 1st IFT) T4 (AM 2nd IFT)	Adjust for maximum output.
(2)	〃	511kHz (514kHz···· [ZI] [ZG] only)	Tuning capacitor fully closed.	〃	L2 (AM OSC Coil)	〃
(3)	〃	1650 kHz (1628kHz···· [ZI] [ZG] only)	Tuning capacitor fully open.	〃	CT3 (AM OSC Trimmer)	〃
(4)	〃	550 kHz	Tune to signal.	〃	(*1)L1 (AM ANT Coil)	Adjust for maximum output. Adjust L1 by moving coil bobbin along ferrite core.
(5)	〃	1500 kHz	Tune to signal.	〃	CT4 (AM ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5)
	(*1) Cement antenna bobbin with wax after completing alignment.					
	FM-IF ALIGNMENT					
(6)	High side thru. 0.001μF to point ▼3 Negative side to point ▼2	10.7 MHz	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point ▼5 Negative side to point ▼6	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 1).
(7)	〃	〃	〃	〃	T2 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 2).
	FM-RF ALIGNMENT					
(8)	Connect point ▼ through FM dummy antenna Negative side to point ▼2	86.2MHz (87.3MHz 〔ZI〕〔ZG〕··· Only)	Tuning capacitor fully closcd.	Output meter across voice coil	L4 (FM OSC Coil)	(*2) Adjust for maximum output.
(9)	〃	109.3 MHz (108.3MHz 〔ZI〕〔ZG〕··· Only)	Tuning capacitor fully open.	〃	CT1 (FM OSC Trimmer)	〃
(10)	〃	90 MHz	Tune to signal.	〃	L3 (FM ANT Coli)	〃
(11)	〃	106 MHz	Tune to signal.	〃	CT2 (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (8)~(11).
	(*2) Three output responses will be present; proper tuning is the center frequency.					

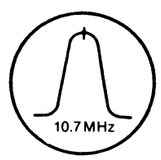


Fig. 1

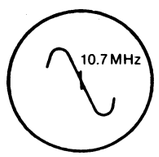
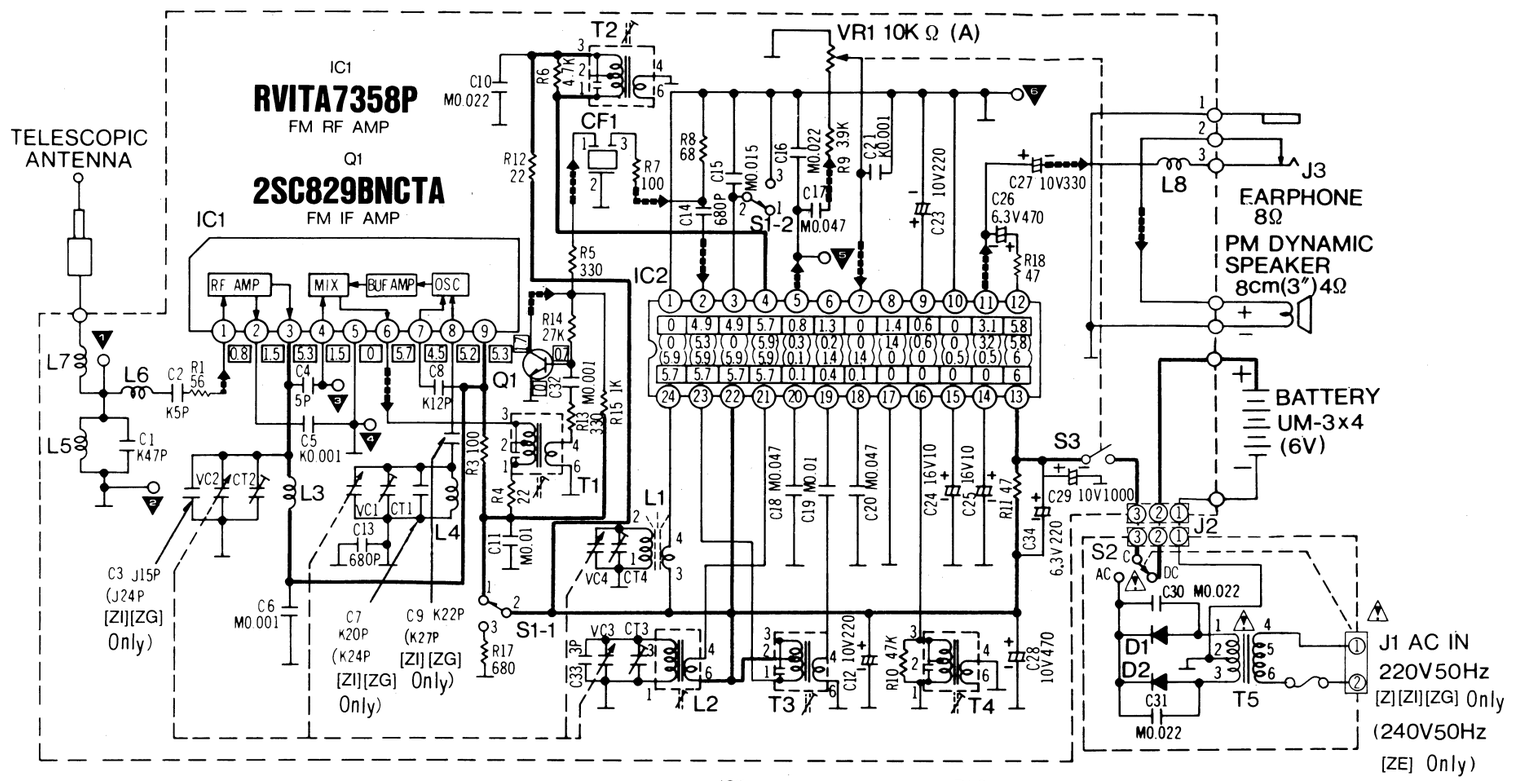
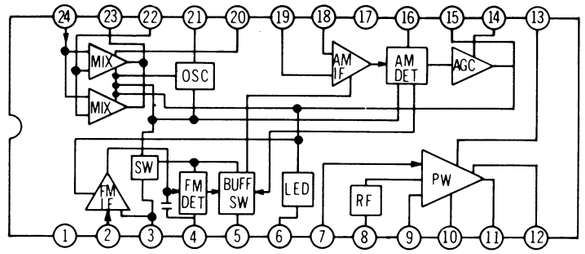


Fig. 2

SCHEMATIC DIAGRAM



IC2 TA8100N



Notes:

1. S1-1~S1-2: Band switch in "FM" position (1……FM, 3……AM)
2. S2: Power select switch in "DC" position
3. S3: Power switch in "OFF" position
4. DC Voltage measurements are taken with an electronic voltmeter based on negative terminal of Battery. □…FM position, ( )…AM position.
5. Battery Current no signal… 20mA
   Maximum output ……225mA
6. VR1……Volume Control.
7. ——— +(B) Voltage Line
   ▬▬▶ FM Signal Line.
8. The mark (▼) Shows test point. e.g.
   ▼1 …Test point 1
9. Important safety notice
   Components identified by the symbol ⚠ have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.

■ RESISTORS & CAPACITORS PARTS LIST

Numbering System of Resistor

Example:

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value (100Ω)

ERJ	6G	C	J	2R2
Type	Wattage	Shape	Tolerance	Value (2.2Ω)

Resistor Type		Wattage	Tolerance
ERD:	Carbon Resistor	10 : 1/8W	F : ±1%
ERC:	Solid Resistor	25 : 1/4W	G : ±2%
ERF:	Incombustible Box-Shaped Wire-Wound Resistor	50 : 1/2W	J : ±5%
		18 : 1/8W	K : ±10%
		14 : 1/4W	M : ±20%
		12 : 1/2W	
ERG:	Metal Oxide-Film Resistor	1 : 1W	
		2 : 2W	
ERM:	Wire-Wound Resistor	3 : 3W	
		S1 : 1/2W	
ERO:	Superstable Metal Film Resistor	S2 : 1/4W	
		6G : 1/10W	
		8G : 1/8W	
ERX:	Metal-Film Resistor		
RRJ: ERJ:	Chip Resistor		

※ Capacity are in microfarads (μF) unless specified otherwise, P=Pico-farads.
※ Resistance are in ohms (Ω), unless specified otherwise, 1K=1,000Ω, 1M=1,000KΩ

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage	Value (1000pF)	Tolerance	Peculiarity

ECEA	50	M	R47
Type	Voltage	Peculiarity	Value (0.47μF)

Capacitor Type		Voltage	Tolerance
ECCD:	Ceramic Capacitor (Chitacon)	(ECCD, ECKD Type) 1H : 50V DC 2H : 500V DC	K : ±10%
ECKD:	Ceramic Capacitor (Chitabari)	(ECFD Type) C : 12V DC D : 25V DC	M : ±20%
ECFD:	Semiconductor Ceramic Capacitor	E : 50V DC (ECQ Type)	Z : +80% −20%
ECE□:	Electrolytic Capacitor	05 : 50WV DC 1 : 100WV DC	J : ±5%
ECS□:	Tantalum Fixed Electrolytic Capacitor	(ECE, ECS Type) 0G : 4V 0J : 6.3V	G : ±2%
ECQ□:	Polystyrenc Film Capacitor	1A : 10V 1C : 16V	F : ±1%
ECQS:	Polystyrene Film Capacitor	1E : 25V 1V : 35V	C : ±0.25pF
ECQS:	Polypropylene Film Capacitor	1H : 50V 1J : 63V	D : ±0.5pF
ECQV:	T.F Capacitor	2A : 100V	F : ±1pF
ECU□: RCU□:	Chip Capacitor		
ECBT:	Cylindrical Ceramic Capacitor		

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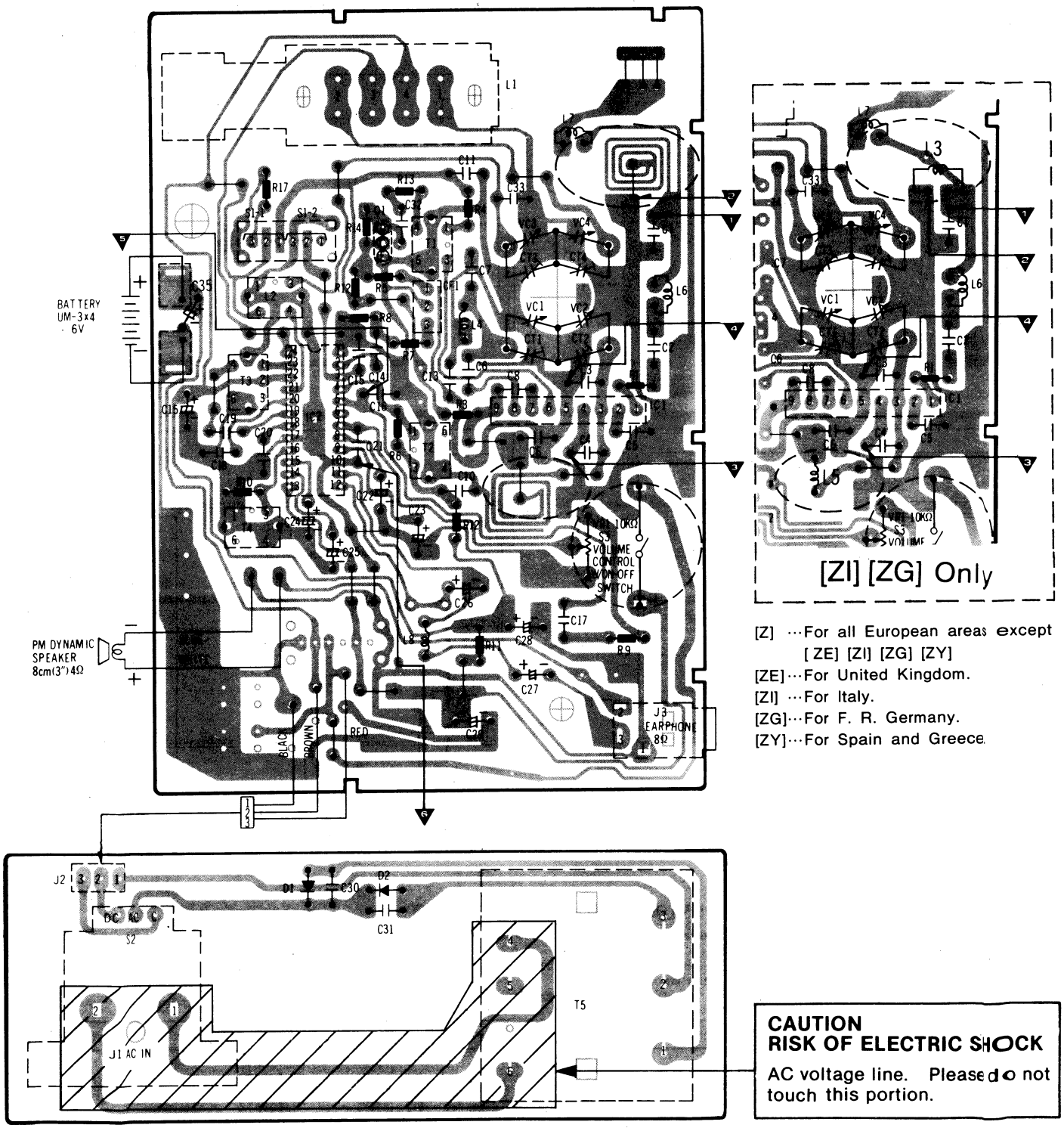
Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS		C9(Z)(ZE)	ECCD1H220KC
R1	ERDS2TJ560	C9(ZI)(ZG)	ECCD1H270KC
R3,7	ERDS2TJ101	C10,16	ECFD1C223MD
R4,12	ERDS2TJ220	C11	ECFD1C103MDY
R5,13	ERDS2TJ331	C12,23	ECEA1AS221
R6	ERDS2TJ472	C13,14	RCBS1H681KB
R8	ERDS2TJ680	C15	RCBS0J153MY
R9	ERDS2TJ392	C17,18,20	ECFD1C473MD
R10	ERDS2TJ473	C19	RCBS1C103MY
R11,18	ERDS2TJ470	C24,25	ECEA1CS100
R14	ERDS2TJ273	C26	ECEA0JS471
R15	ERDS2TJ102	C27	ECEA1AS331
R17	ERDS2TJ681	C28	ECEA1AS471
CAPACITOR		C29	ECEA1AS102
C1	ECCD1H470KC	C30,31	ECKD1H223ZF
C2	ECCD1H050CC	C33	ECCD1H030CC
C3(Z)(ZE)	RCBS1H150JC	C34	ECEA0JS221
C3(ZI)(ZG)	RCBS1H240JL		
C5,21	RCBS1H102KB		
C6,32	ECKD1H102MD		
C7(Z)(ZE)	ECCD1H200KC		
C7(ZI)(ZG)	ECCD1H240KT		
C8	ECCD1H120KC		

■ REPLACEMENT PARTS LIST

(T) Indicates parts that are supplied by TAMACO.
Important safety notice
Components identified by the symbol ⚠ have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

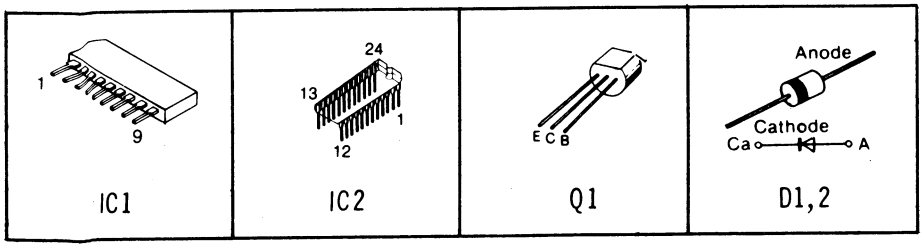
Ref. No.	Part No.	Part Name & Description
	INTEGRATED CIRCUIT, TRANSISTOR AND DIODES	
IC1	**RVITA7358P**	I. C.
IC2	**TA8100N**	I. C.
Q1	**2SC829-B**	Transistor
D1,D2(T)	**RVD1N4002**	Diode
	COILS AND TRANSFORMERS	
L1(T)	**RLF2C63**	Antenna Coil AM
L2(T)	**RLO2B113**	Oscillator Coil AM
L3(T) (ZI)(ZG)	**RLO4Y19**	Antenna Coil FM
L4(T) (Z)(ZE)	**RLO4Y70**	Oscillator Coil FM
L4(ZI)(ZG)	**RLO4N148**	Oscillator Coil FM
L5(ZI)(ZG)	**RLQY10S3**	Choke Coil
L6,7	**RLQY50S5**	Choke Coil
L8	**RLQZB100K**	Choke Coil
T1	**RLI4B153**	I. F. Transformer FM
T2(T)	**RLI4B158**	I. F. Transformer FM
T3(T)	**RLI2B465**	I. F. Transformer AM
T4(T)	**RLI2B215**	I. F. Transformer AM
T5(T) (Z)(ZI)(ZG)	**RLT5I2G4A**	Power Transformer ⚠
T5(T)(ZE)	**RLT5I2A2A**	Power Transformer ⚠
	VARIABLE RESISTOR	
VR1(T)	**RVV5C6A14**	V. R. Volume (With Power in V. R. S3)
	VARIABLE CAPACITOR	
VC1-4	**RCV4LC2V1K**	Tuning Capacitor, W/Trimmer Capacitor (CT1−4)
	CERAMIC FILTER	
CF1	**RVFSFE107MAZ**	Ceramic Filter
	SWITCHES	
S1	**RSS139**	Switch, Band
	SPEAKER	
SP1(T)	**EAS8P307TZ**	Speaker
	JACK	
J1(T) (Z)(ZI)(ZG)	**RJJ1A4Y**	Jack, AC IN (With Battery in Jack S2) ⚠
J1(T)(ZE)	**RJJ1A5Z**	Jack, AG IN (With Battery in Jack S2) ⚠
J2	**RJP3G1TZ**	3P Plug
J3	**RJJD3M6Z**	Jack, Headphones

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

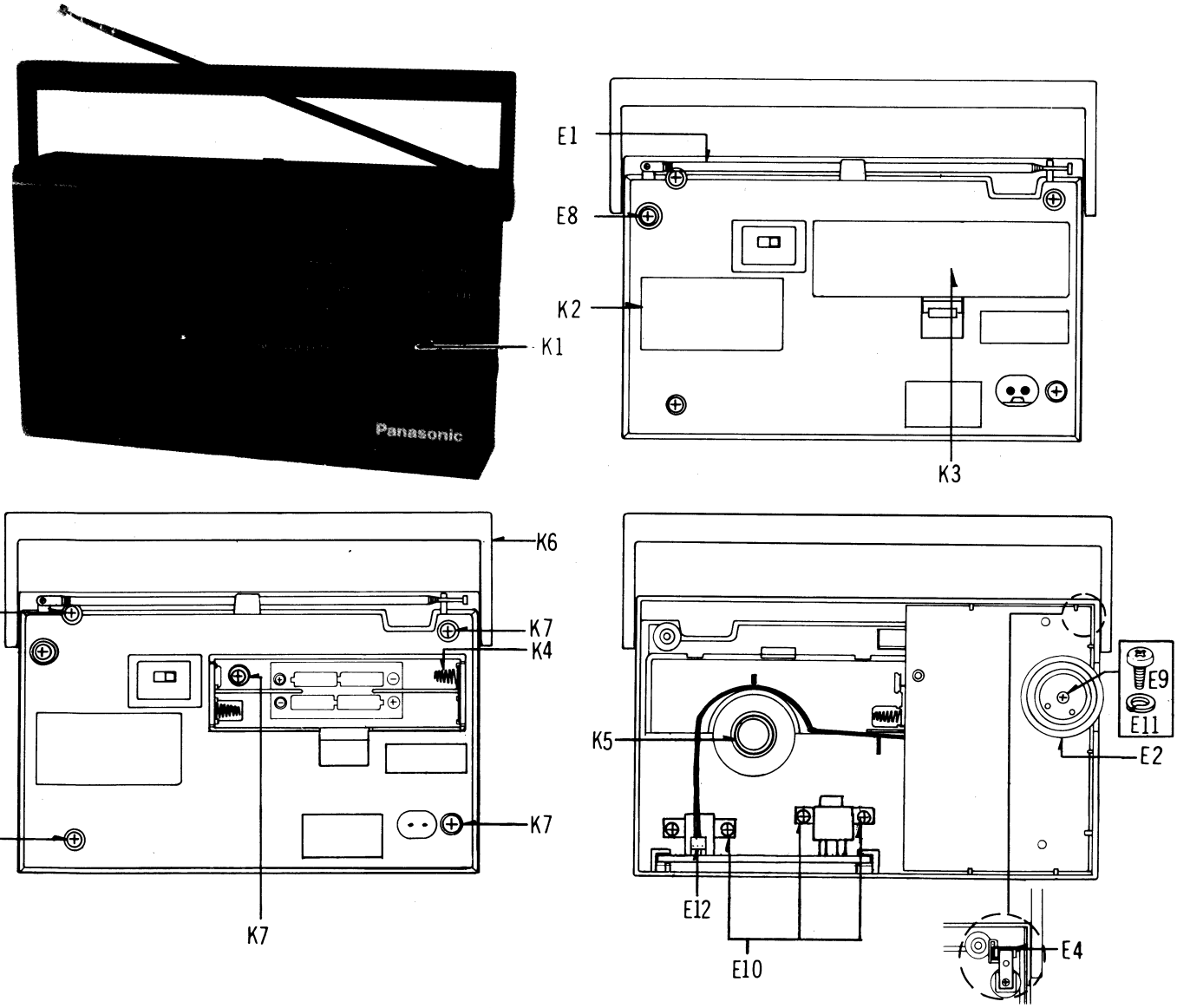


[Z] ···For all European areas except [ZE] [ZI] [ZG] [ZY]
[ZE]···For United Kingdom.
[ZI] ···For Italy.
[ZG]···For F. R. Germany.
[ZY]···For Spain and Greece.

CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please do not touch this portion.



CABINET AND ELECTRICAL PARTS LOCATION



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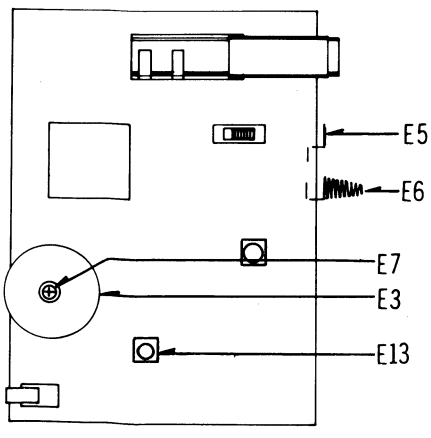
NOTES:
(BK) ....Black
(WT) ....White



Ref. No.	Part No.	Part Name & Description
	CABINET PARTS	
K1(T)(Z)(ZE)	**RYMF542ZKT**	Front Cabinet Ass'y (BK)
K1(T)(Z)(ZE)	**RYMF542ZKT8**	Front Cabinet Ass'y (WT)
K1(T)(ZI)(ZG)	**RYMF542ZIKT**	Front Cabinet Ass'y (BK)
K1(T)(ZI)(ZG)	**RYMF542ZIKT8**	Front Cabinet Ass'y (WT)
K2(T)(Z)	**RYFF542ZKT**	Rear Cabinet Ass'y (BK)
K2(T)(Z)	**RYFF542ZKT8**	Rear Cabinet Ass'y (WT)
K2(T)(ZE)	**RYFF542ZEKT**	Rear Cabinet Ass'y (BK)
K2(T)(ZE)	**RYFF542ZEKT8**	Rear Cabinet Ass'y (WT)
K2(T)(ZI)	**RYFF542ZIKT**	Rear Cabinet Ass'y (BK)
K2(T)(ZI)	**RYFF542ZIKT8**	Rear Cabinet Ass'y (WT)
K2(T)(ZG)	**RYFF542ZGKT**	Rear Cabinet Ass'y (BK)
K2(T)(ZG)	**RYFF542ZGKT8**	Rear Cabinet Ass'y (WT)
K3(T)	**RYNF542XKT**	Battery Cover Ass'y (BK)
K3(T)	**RYNF542ZKT8**	Battery Cover Ass'y (WT)
K4(T)	**RJC262TZ**	Battery Terminal (+&−)
K5(T)	**RMS202TZ**	Spring
K6(T)	**RKH211TZ**	Handle (BK)
K6(T)	**RKH211TZ8**	Handle (WT)
K7	**XTN3+20C**	Screw
	ELECTRICAL PARTS	
E1(T)	**XEARK162DAY**	Telescopic Antenna
E2(T)	**RBT238TZ**	Knob, Tuning (BK)
E2(T)	**RBT238TZ8**	Knob, Tuning (WT)
E3(T)	**RBT239TZ**	Knob, Volume (BK)
E3(T)	**RBT239TZ8**	Knob, Volume (WT)
E4(T)	**RJT235TZ**	Terminal
E5(T)	**RJC263TZ**	Battery Terminal (+)
E6(T)	**RJC264TZ**	Battery Terminal (−)
E7(T)	**M17+4**	Screw
E8	**XYN3+F8FN**	Screw
E9	**XSN26+5**	Screw
E10	**XTV3+12C**	Screw
E11	**XWA26B**	Washer
E12(T)	**QEF075TY**	Souce Wire Ass'y
E13	**RMC163**	Shield Cover
	ACCESSORIES	
A1(Z)(ZI)(ZG)	**RJA20Z**	Power Cord, AC ⚠
A1(ZE)	**RJA86Z**	Power Cord, AC ⚠
A2(T)	**RQX578TZ**	Instruction Manual
	PACKING MATERIALS	
P1(T)	**RPK388TZ**	Carton Box
P2(T)	**RPP264TZ**	Polyethylene Cover
P3(T)	**RPNA1033TZ**	Polylon

TD[Z]/[ZE]/[ZI]/[ZG]/[ZY] T.Y
Printed in Taiwan